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EXAMINER

NGUYEN, DAVID Q

ART UNIT

PAPER NUMBER

2682

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/466,308

Applicant(s)

PATEL, ACHAL R.

Examiner

David Q Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 December 1999.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-83 is/are pending in the application.
- 4a) Of the above claim(s) 63-83 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-62 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-83 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,4,5,6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

*Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-62 drawn to a method and a system for allocating bandwidth in a wireless communications network comprising estimating bandwidth parameters and allocating bandwidth for a geo-location area based on data and bandwidth parameters, classified in class 455, subclass 406.
  - II. Claims 63-83, drawn to a method and a system for estimating bandwidth requirements comprising adding the interference contribution to the bandwidth demand to estimate allocation bandwidth requirements for a area, classified in class 455, subclass 450.
2. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as improving the quality of service for a transmission of loss sensitive data. See MPEP § 806.05(d).

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Terry J. Stalford (Reg. No. 39522) on October 9, 2002 a provisional election was made without traverse to prosecute the invention of group I, claims 1-62. Affirmation of this election must be made by applicant in replying to this Office action. Claims 62-83 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3; 10-15, 32-34, and 41-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Busuioc et al. (US Patent Number 6151309) in view of Van den Heuvel et al. (US Patent Number 5301359).

Regarding claims 1 and 32, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network comprising a geo-location tool residing on a computers readable medium, the geo-location tool operable to receive data for a wireless communications network including a plurality of geo-location areas; and an allocation engine residing on the computer-readable medium, the allocation engine operable to allocate bandwidth in the geo-location area based on its bandwidth parameters (see abstract; col. 3, lines 5-15; fig. 1 and fig. 3). Busuioc are silent to estimate bandwidth parameters for a geo-location area based on

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the data. However, Van den Heuvel disclose to estimate bandwidth parameters for a geo-location area based on the data (see col. 2, lines 12-28; fig. 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Van den Heuvel to Busuioc so that a communication unit can access more than one type of communication system and system can provide enough bandwidth when bandwidth is needed to provide users.

Regarding claims 2 and 33, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel comprising all of the limitations as claimed. Busuioc also disclose the geo-location tool further operable to determine an allocation bandwidth for the geo-location area; and the allocation engine further operable to allocate bandwidth in the geo-location area based on the allocation bandwidth (see abstract; col. 3, lines 5-15; fig. 1 and fig. 3).

Regarding claims 3 and 34, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel comprising all of the limitations as claimed. Busuioc also disclose wherein the bandwidth parameters comprise at least one of a bandwidth usage and a bandwidth demand for the geo-location area (see col. 5, lines 30-35).

Regarding claims 5 and 36, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel comprising all of the limitations as claimed. Busuioc also disclose the geo-location tool operable to estimate bandwidth parameters for the geo-location area on a per service class basis; and the allocation engine operable to allocate bandwidth in the geo-location on the per service class basis based on

the bandwidth parameters (see abstract; col. 3, lines 5-15; fig. 1 and fig. 3; col. 3, lines 60-67; col. 4, lines 1-13).

Regarding claims 10 and 41, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel comprising all of the limitations as claimed. Busuioc also disclose wherein the data comprising contractual service level data (see col. 5, lines 12-67; col. 6, lines 1-44).

Regarding claims 11 and 42, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel comprising all of the limitations as claimed. Busuioc also disclose wherein the data comprises at least one of data measured from usage within the wireless communications network, radio frequency measurement, and interference estimates (see col. 5, lines 12-67; col. 6, lines 1-67; col. 7, lines 1-67; col. 8, lines 1-67).

Regarding claims 12 and 43, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel comprising all of the limitations as claimed. Busuioc also disclose the geo-location tool further operable to generate, based on the data, a subscriber usage profile indicating the probability of a subscriber engaging in a connection at the geo-location area and to estimate bandwidth parameters based on the subscriber usage profile (see col. 5, lines 12-67; col. 6, lines 1-44).

Regarding claims 13 and 44, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel comprising all of the limitations as claimed. Busuioc also disclose wherein the subscriber usage profile comprises mobility information for the subscriber (see col. 5, lines 12-67; col. 6, lines 1-44).

Regarding claims 14 and 45, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel comprising all of the limitations as claimed. Busuioc also disclose wherein the subscriber usage profile comprises service class invocation information for the subscriber (see col. 5, lines 12-67; col. 6, lines 1-44).

Regarding claims 15 and 46, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel comprising all of the limitations as claimed. They are silent to disclose wherein the subscriber usage profile comprising call hold information for the subscriber. However, it would have been obvious to one of ordinary skill in the art that wherein the subscriber usage profile comprising call hold information for the subscriber so that the system can provide call hold information to customers

4. Claims 4,6, 35,37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Busuioc et al. (US Patent Number 6151309) in view of Van den Heuvel et al. (US Patent Number 5301359) and further in view of Smyth et al. (US Patent Number 6347224).

Regarding claims 4 and 35, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel comprising all of the limitations as claimed. They are silent to disclose wherein the bandwidth parameters comprise bandwidth interference contribution for the geo-location area. However, Smyth disclose the bandwidth parameters comprise bandwidth interference contribution for the geo-location area (see col. 10, lines 45-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Smyth to Van den Heuvel, Busuioc in order for avoiding interference conditions by fast changing traffic.

Regarding claims 6 and 37, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel comprising all of the limitations as claimed. They are silent to disclose wherein the data received by the geo-location tool comprises historic and service level data for the wireless communications network. However, Smyth disclose wherein the data received by the geo-location tool comprises historic and service level data for the wireless communications network (see col.12, lines 8-25).

5. Claims 7-9, 16-31, 38-40, and 47-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Busuioc et al. (US Patent Number 6151309) in view of Van den Heuvel et al. (US Patent Number 5301359) and further in view of Smyth et al. (US Patent Number 6347224) and Budhraja (US Patent Number 6324185).

Regarding claims 7 and 38, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel comprising all of the limitations as claimed. They are silent to disclose the geo-location tool further operable to generate, based on the data, a source map comprising sources of bit usage in the geo-location area and to estimate bandwidth parameters for the geo-location area based on the source map. However, Smyth disclose generating a charge rate according to unit of bandwidth or number of bits transmitted in a variable bit rate service (see col. 4, lines 43-47); and Budhraja discloses a bandwidth map defines the bandwidth allocation for each link (see col. 5, lines 35-50). It is apparent that combination of Smyth and Budhraja's inventions discloses generating a source map comprising sources of bit usage in the geo-location area and estimate bandwidth parameters for the geo-location area based on the source map. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of



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Smyth and Budhraj to Van den Heuvel, Busuioc in order for providing enough bandwidth to subscriber within the geo-location area.

Regarding claims 8 and 39, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Smyth, Budhraj, Van den Heuvel and Smyth comprising all of the limitations as claimed. Busuioc also disclose wherein the sources of bit usage comprise a high bandwidth use facility for which a contractual service level is provided by the wireless communications network (see col. 5, lines 12-67; col. 6, lines 1-44).

Regarding claims 9 and 40, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Smyth, Budhraj, Van den Heuvel and Smyth comprising all of the limitations as claimed. Busuioc also disclose wherein the sources of bit usage comprise an establishment for which local wireless access is provided by the wireless communications network at a contractual service level (see col. 5, lines 12-67; col. 6, lines 1-44).

Regarding claims 16 and 47, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel comprising all of the limitations as claimed. They are silent to disclose the geo-location tool further operable to generate, based on the data, a current usage map indicating real-time bandwidth being utilized at the geo-location area. However, Smyth disclose real-time bandwidth being utilized at the geo-location area (see col. 14, lines 64-67); Budhraj discloses a bandwidth map defines the bandwidth allocation for each link (see col. 5, lines 35-50). It is apparent that combination of Smyth and Budhraj's inventions discloses a current usage map indicating real-time bandwidth being utilized at the geo-location area. Therefore, it would have been obvious to one of ordinary

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skill in the art at the time the invention was made to modify the above teaching of Smyth and Budhraj to Van den Heuvel, Busuioc in order for providing real-time bandwidth to subscribers.

Regarding claims 17 and 48, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Smyth, Budhraj, Van den Heuvel and Smyth comprising all of the limitations as claimed. Busuioc also disclose wherein the current usage map comprises a peak rate for each active connection within the geo-location area (see col. 5, lines 12-67; col. 6, lines 1-44).

Regarding claims 18 and 49, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Smyth, Budhraj, Van den Heuvel and Smyth comprising all of the limitations as claimed. Busuioc also disclose wherein the current usage map comprises activity and service class information for each active connection within the geo location area (see col. 5, lines 12-67; col. 6, lines 1-44).

Regarding claims 19 and 50, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Smyth, Budhraj, Van den Heuvel and Smyth comprising all of the limitations as claimed. Busuioc also disclose wherein the current usage map comprises primary and neighboring servers for each active connection within the geo-location area (see col. 5, lines 12-67; col. 6, lines 1-44).

Regarding claims 20 and 51, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel comprising all of the limitations as claimed. They are silent to disclose the geo-location tool further operable to generate, based on the data, a current demand map for the geo-location area based on the data. However, Smyth disclose monitoring means for monitoring current local traffic loading in the

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network (see col. 2, lines 25-35). Budhrajia discloses a bandwidth map defines the bandwidth allocation for each link (see col. 5, lines 35-50). It is apparent that combination of Smyth and Budhrajia's inventions discloses generating a current demand map. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Smyth and Budhrajia to Van den Heuvel, Busuioc in order for expecting bandwidth of geo-location area.

Regarding claims 21 and 52, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Smyth, Budhrajia, Van den Heuvel and Smyth comprising all of the limitations as claimed. Smyth also disclose a peak rate for each potential connection within the geo-location area (see col. 2, lines 20-35). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Smyth to Van den Heuvel, Busuioc, Budhrajia in order to provide service to users at locations where users agree to pay for service.

Regarding claims 22 and 53, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Smyth, Budhrajia, Van den Heuvel and Smyth comprising all of the limitations as claimed. Smyth also disclose activity and service class information for each potential connection within the geolocation area (see col. 4, lines 43-47). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Smyth to Van den Heuvel, Busuioc, Budhrajia in order to provide service to users at locations where users agree to pay for specific service.

Regarding claims 23 and 54, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel and Smyth comprising all of the limitations as claimed. Smyth also disclose primary and neighboring servers for each active connection within the geo-location area (see col. 3, lines 43-58).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Smyth to Van den Heuvel, Busuioc, Budhraj in order to provide service to users at locations where users agree to pay for specific service.

Regarding claims 24 and 55, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel comprising all of the limitations as claimed. They are silent to disclose the geo-location tool further operable to generate, based on the data, an expected demand map for the geo-location area based on the data. However, Smyth disclose Smyth disclose monitoring means for monitoring current local traffic loading in the network; data processing means for generating a local traffic related parameter, dependent on the current traffic loading and the historic traffic data (see col. 2, lines 20-35); Budhraj discloses a bandwidth map defines the bandwidth allocation for each link (see col. 5, lines 35-50). It is apparent that combination of Smyth and Budhraj's inventions discloses generating an expected demand map. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Smyth and Budhraj to Van den Heuvel, Busuioc in order for expecting bandwidth of geo-location area.

Regarding claims 25 and 56, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel and Smyth comprising all of the limitations as claimed. Smyth also disclose a peak rate for each potential

connection within the geo-location area (see col. 2, lines 20-35). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Smyth to Van den Heuvel, Busuioc, Budhraj in order to provide service to users at locations where users agree to pay for service.

Regarding claims 26 and 57, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel and Smyth comprising all of the limitations as claimed. Smyth also disclose activity and service class information for each potential connection within the geolocation area (see col. 4, lines 43-47). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Smyth to Van den Heuvel, Busuioc, Budhraj in order to provide service to users at locations where users agree to pay for specific service.

Regarding claims 27 and 58, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel and Smyth comprising all of the limitations as claimed. Smyth also disclose primary and neighboring server information for each potential connection within the geo-location area (see col. 3, lines 43-58). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Smyth to Van den Heuvel, Busuioc, Budhraj in order to provide service to users at locations where users agree to pay for specific service.

Regarding claims 28 and 59, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel comprising all of the limitations as claimed. They are silent to disclose the geo-location tool further operable to generate an interference contribution map indicating the impact on resource usage of supporting

various bandwidth at the geo-location area based on the data. However, Smyth disclose bandwidth interference contribution indicating the impact on traffics (see col. 10, lines 45-67). Budhrajia discloses a bandwidth map defines the bandwidth allocation for each link (see col. 5, lines 35-50). It is apparent that combination of Smyth and Budhrajia's inventions discloses generating an expected demand map. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Smyth and Budhrajia to Van den Heuvel, Busuioc so that it would be possible to charge for the total number of channels used.

Regarding claims 29 and 60, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel and Smyth comprising all of the limitations as claimed. Smyth also disclose an interference contribution value and a probability for each of a plurality of service classes associated with bandwidth at one or more sectors within the geo-location area (see col. 13, lines 37-42). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Smyth to Budhrajia, Van den Heuvel, Busuioc so that it would be possible to charge for the total number of channels and services classes used.

Regarding claims 30 and 61, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel and Smyth comprising all of the limitations as claimed. Smyth also disclose expected resource usage for each of a plurality of service classes at the geo-location area (see col. 2, lines 20-35; col. 3, lines 43-58; col. 6, lines 11-21; col. 10, lines 45-57; col. Col. 13, lines 1-7; col. 13, lines 37-42). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention

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was made to modify the above teaching of Smyth to Budhreja, Van den Heuvel, Busuioc so that it would be possible to charge for the total number of channels and services classes used.

Regarding claim 31 and 62, Busuioc disclose a system and a method for allocating bandwidth in a wireless communications network modified by Van den Heuvel. Smyth and Budhreja disclose the allocation engine further operable to generate a bandwidth supply map indicating the available bandwidth at the geo-location area based on the allocation bandwidth, a total bandwidth, and an interference contribution bandwidth for the geo-location area (see explanation in claims 20, 24, and 28).

### *Conclusion*


6. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Nguyen Q. David whose telephone number is (703) 605-4254. The examiner can be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (703)308-6739. The fax numbers for the organization

where this application or proceeding is assigned are (703) 872-9314 for all communications.

DN

David Q. Nguyen

  
11/01/02

NGUYENT.VO  
PRIMARY EXAMINER